Basin Plan Amendment for the Development of Methylmercury Total Maximum Daily Load for the Lower American River and Lake Natoma

CEQA Scoping Meeting

July 8, 2010

Overview

- Purpose of the CEQA Scoping Meeting
- Basin Plan Amendments (BPA) and Total Maximum Daily Loads (TMDL)
- Project Background
- CEQA Scoping

Purpose of the CEQA Scoping Meeting / Workshop

- What is CEQA?
  - California Environmental Quality Act
  - Evaluation of Environmental Impacts
  - Public Awareness and Public Participation
- What is our Project?
  - Development of TMDLs for Mercury in the LAR and Lake Natoma
  - Basin Plan Amendment (BPA)
    - Adoption of a fish tissue objective for methylmercury.
    - Implementation of methyl- and total mercury control programs.
    - Addition of the Commercial and Sport Fishing beneficial use to the LAR and Lake Natoma

Regulatory Requirements

- Porter-Cologne Water Quality Control Act
  - Regional Water Quality Control Boards are responsible for protecting surface and ground water quality.
  - Requires Regional Boards to establish Basin Plans.
    - Central Valley Region Water Quality Control Plan – Sacramento and San Joaquin River Basins
      - Designates Beneficial Uses
      - Establishes Water Quality Objectives
      - Describes the Implementation Plan
      - Describes the Monitoring and Surveillance Program

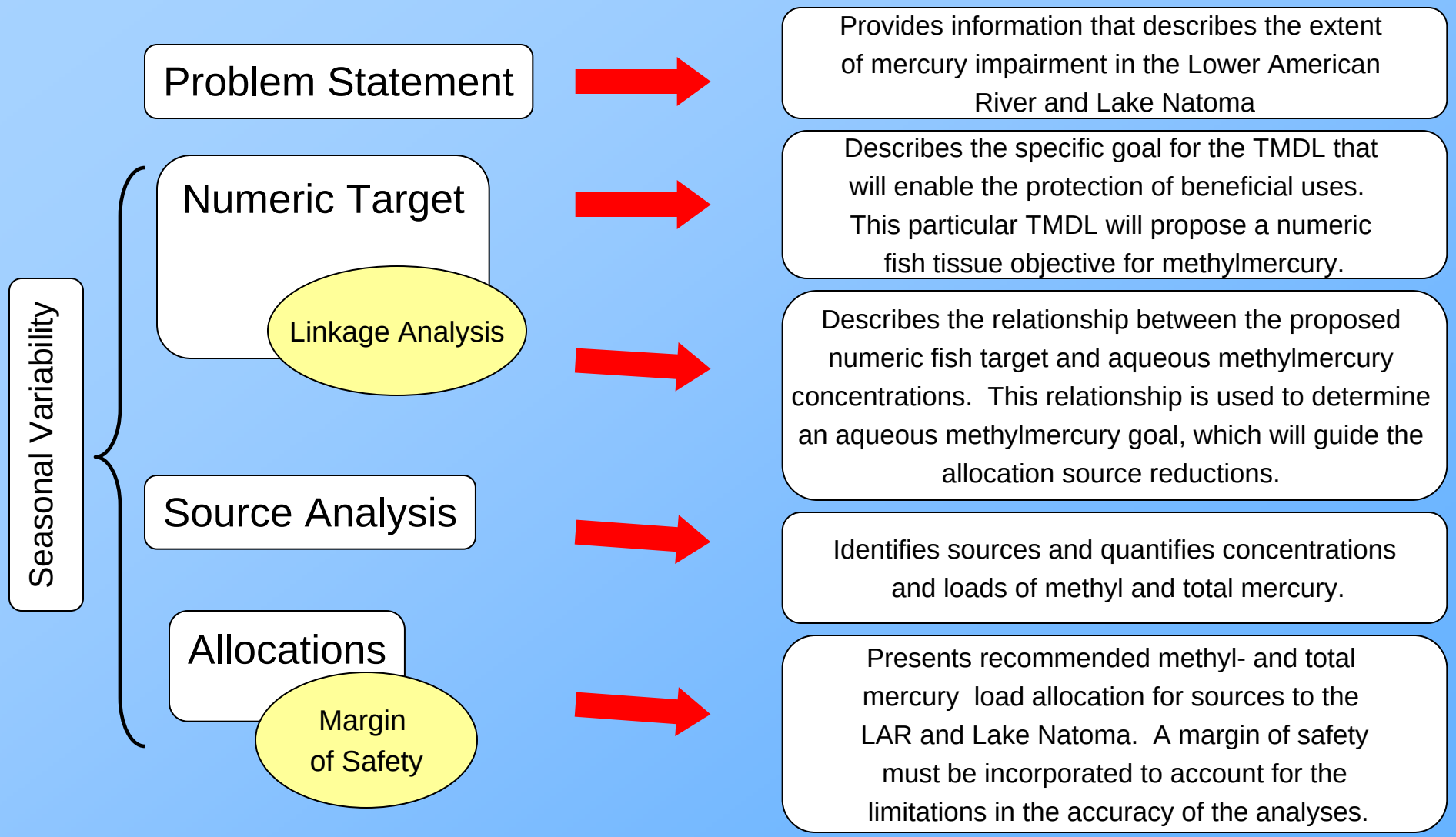
Regulatory Requirements
(continued)

- Federal Clean Water Act
  - CWA Section 303(d):
    - Identify waters that do not meet standards.
    - Establish Total Maximum Daily Loads designed to attain standards.
      - TMDL is that amount of pollutant a water body can receive and still attain water quality standards.

Beneficial Uses of the Lower American River and Lake Natoma

- Municipal and Domestic Supply (MUN)
- Migration of Aquatic Organisms (MIGR)
- Industrial Service Supply (IND)
- Hydropower Generation (POW)
- Agricultural Supply (AGR)
- Spawning, Reproduction, and/or Early Development (SPWN)
- **Water Contact Recreation (REC-1)**
- Non-contact Water Recreation (REC-2)
- Warm Freshwater Habitat (WARM)
- Cold Freshwater habitat (COLD)
- **Wildlife Habitat (WILD)**
- Commercial and Sport Fishing (COMM) (Proposed)

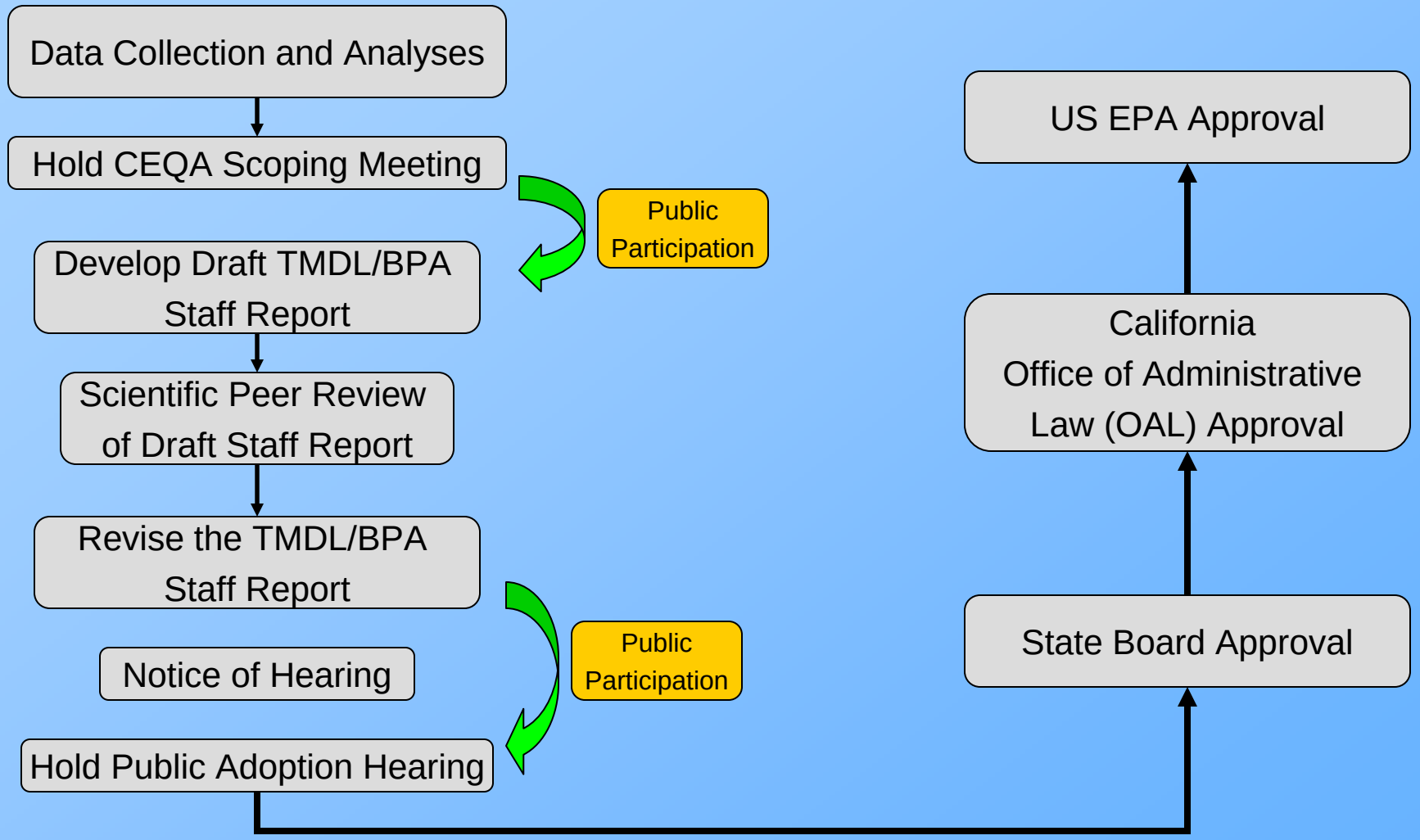
TMDL Elements



Basin Plan Amendment

- Addition of the beneficial use designation of commercial and sport fishing (COMM) for the LAR and Lake Natoma
- Defines the LAR and Lake Natoma Mercury Control Program
  - Numeric objectives for methylmercury in fish tissue that are specific for the LAR and Lake Natoma
  - An implementation plan for controlling methyl- and total mercury sources
  - A surveillance and monitoring program
- Evaluation of Alternatives
- Environmental and Economic Analyses
- Scientific Peer Review
- Public Participation

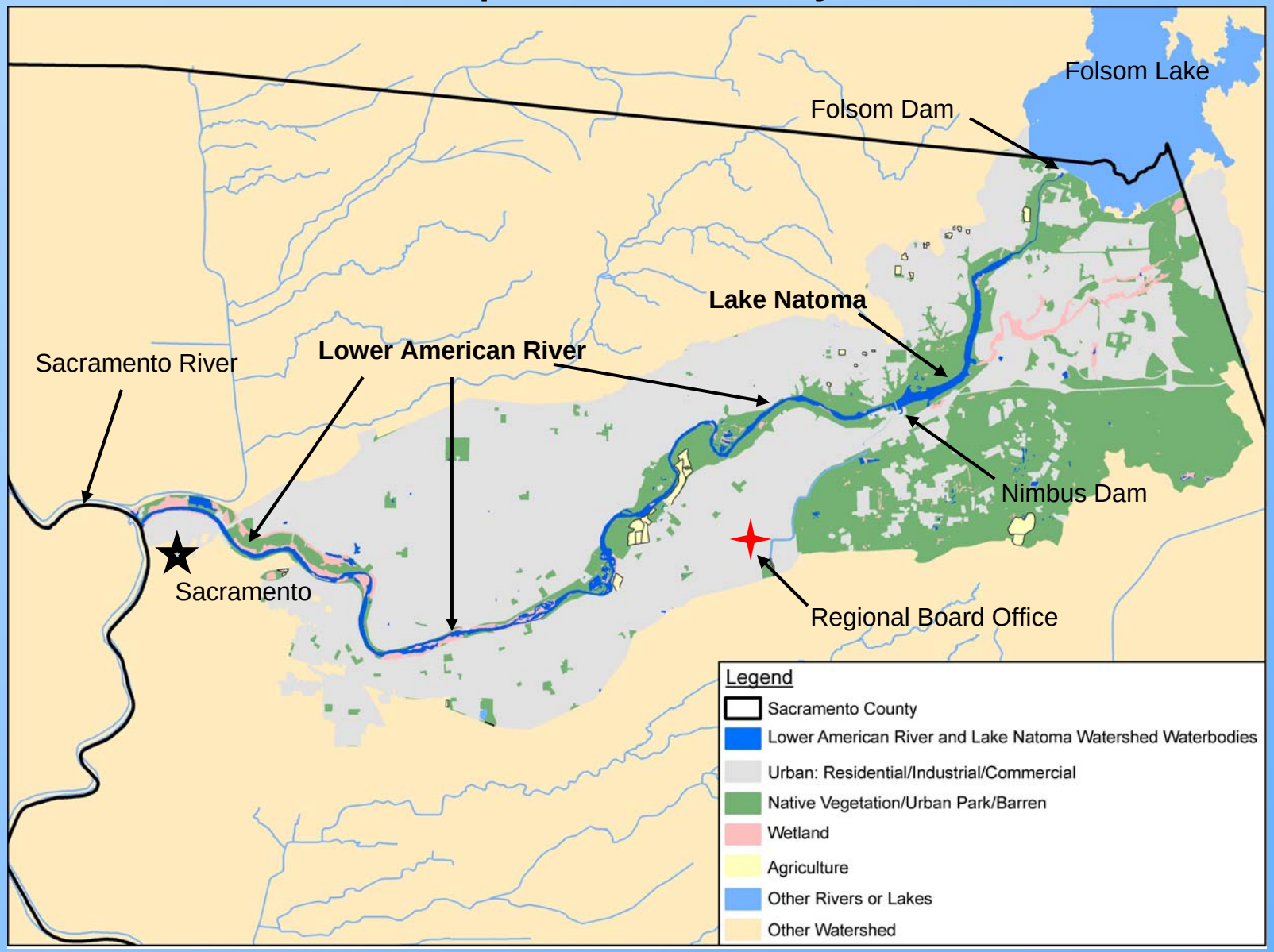
Basin Planning Steps



Project Background

- Project Scope
- Problem with Mercury
- Extent of Mercury Impairment
- Sources of Mercury to the LAR and Lake Natoma

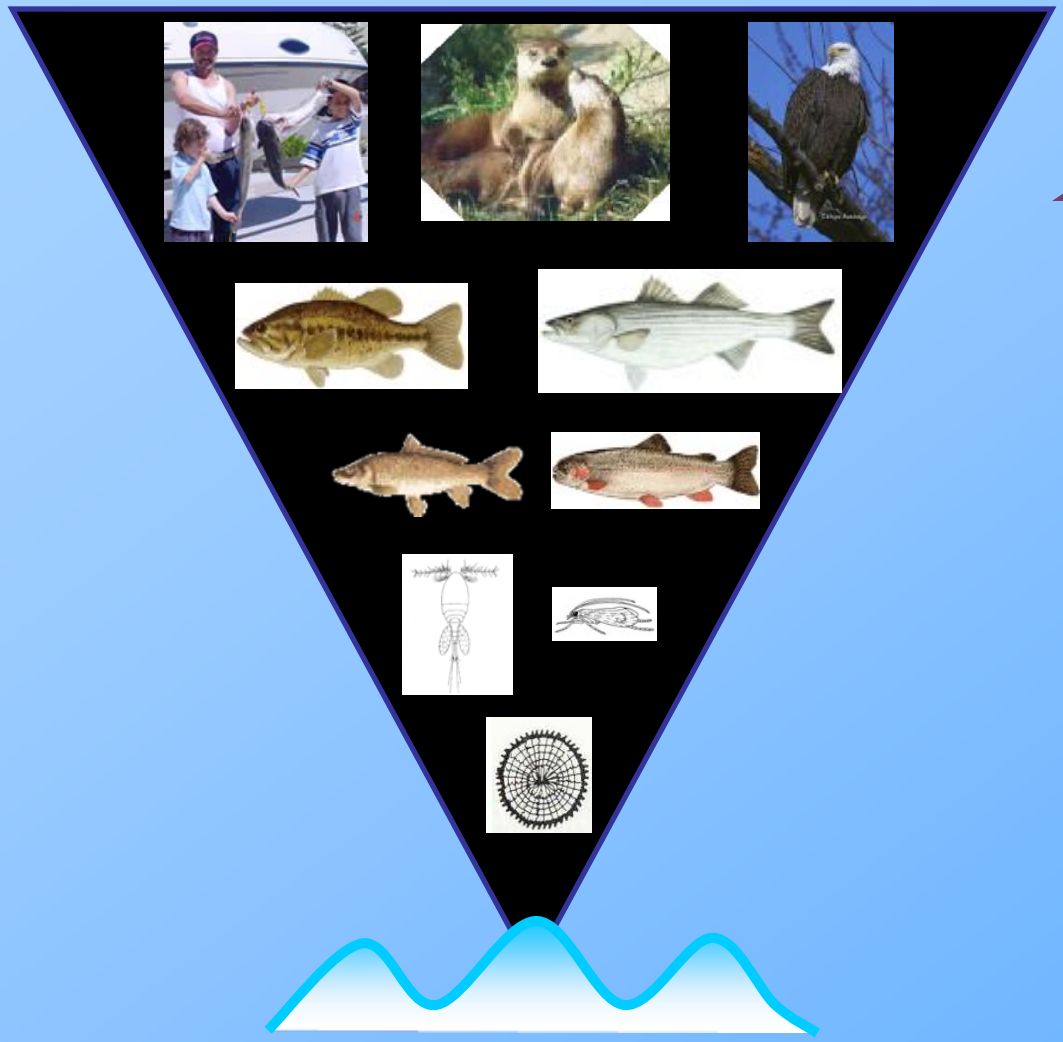
Scope of the Project



Why is Mercury a Problem?

- Mercury is a toxicant that impairs the nervous, reproductive, and immune systems in humans and wildlife.
- Mercury can have lethal and sub-lethal effects.
- Offspring can be exposed to mercury during embryonic development.
- Methylmercury (MMHg) is one of the most toxic forms because it is more readily absorbed and excreted more slowly.
- Exposure is mainly through the consumption of fish.

MMHg Bioaccumulates…



Top Predators

Trophic Level 4
bass, catfish
pikeminnow

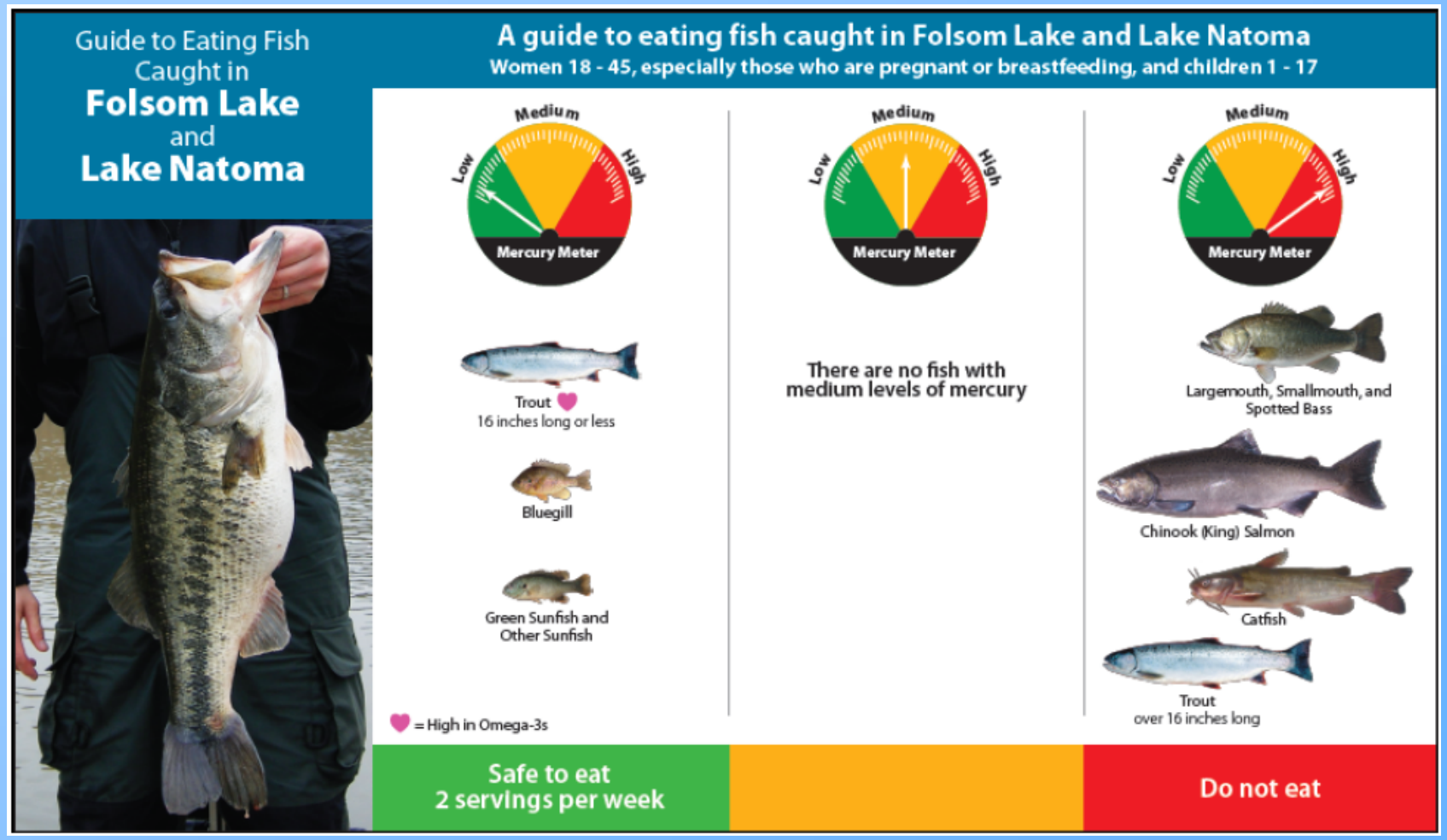
Trophic Level 3
bluegill, carp,
silverside, sucker

Trophic Level 2
juvenile fish,
zooplankton

Trophic Level 1
diatoms, algae

Extent of Impairment

- The California Office of Environmental Health Hazard Assessment issued a fish consumption advisory for the LAR and Lake Natoma.



Extent of Impairment (continued)

- United States Environmental Protection Agency (USEPA) advises a criterion of 0.3 µg/g (ppm) methylmercury in the edible portions of fish for human health protection.
- Fish tissue data evaluated from the LAR and Lake Natoma suggest that mercury concentrations in fish tissue of 0.08 ppm for large trophic level 3 [TL3] fish and 0.27 ppm for large trophic level 4 [TL4] fish should be protective of wildlife.

Summary of Mercury Concentrations in Fish Tissue Samples Collected from the Lower American River and Lake Natoma.

Water Body	Fish Trophic Level	Average Mercury Concentration (ppm)	Range of Mercury Concentrations (ppm)	% of Samples Exceeding Mercury Criteria		
				Human Protection	Wildlife Protection	
				USEPA Criterion (0.3 ppm)	TL3 Criteria (0.08 ppm)	TL4 Criteria (0.27 ppm)
Lower American River	3	0.14	0.029 - 0.75	8%	63%	-
	4	0.48	0.062 - 1.43	60%	-	64%
Lake Natoma	3	0.12	0.02 - 1.95	5%	52%	-
	4	0.46	0.069 - 1.98	42%	-	45%

Possible Sources of Inorganic Mercury

- Upstream Gold Mines
- Folsom Lake
- Mine Dredge Tailings
- Atmospheric Deposition
- Stormwater Runoff
- River, Stream, and Lake Bottoms

Possible Sources of Methylmercury

- Folsom Lake Discharges
- Urban Runoff
- NPDES Permitted Facilities
- In-channel/Lake Sediment Flux
- Atmospheric Deposition
- Other Land Uses (Agricultural, Pasture, non-Urban Runoff, etc.)

Scoping

- Discuss a range of alternatives for each topic:
  - Addition of COMM Beneficial Use
  - Addition of a numeric MMHg fish tissue objective to the Basin Plan.
  - Implementation actions to reduce MMHg in fish.
- Discuss the significant or potentially significant environmental impacts of the alternatives.
- Determine measures to mitigate any significant environmental impacts of this project.

CEQA Checklist

Evaluate possible environmental impacts on the following categories:

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Recreation
- Transportation
- Utilities and Sewer Services

Addition to the Basin Plan: COMM

- Commercial and Sport Fishing (COMM): Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
- Common Sport Fish: salmon, trout, catfish, bass, carp, shad.

CEQA Checklist for the Addition of COMM

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Recreation
- Transportation
- Utilities and Sewer Services

Environmental Impacts?	Impact Significant?	Mitigation Measures

Addition to the Basin Plan: Possible Numeric Fish Tissue Objectives for Methylmercury

Option	Safe Consumption Level	Corresponding Fish Tissue Level (ppm)	Implications
1	No Action: About one 8-ounce meal every other week.	TL3 0.14 TL4 0.48	Not protective of wildlife or humans. No mercury reductions necessary.
2	Human consumption rate of one 8-ounce locally caught fish meal every other week. USEPA's recommended consumption rate, and represents the 90th % consumption rate for the general population.	TL3 0.17 TL4 0.41	Not protective of wildlife. Protective of occasional human consumers of locally caught fish. 0-15% reduction of mercury necessary to attain.
3	Estimated level to protect wildlife. Human Consumption rate of one 8-once fish meal per week. Consistent with the consumption rates of the SF Bay and Delta TMDLs.	TL3 0.08 TL4 0.24	Protective of wildlife consumers. Protective of the general population and average sport fishers. About a 50% reduction of mercury necessary to attain.
4	Human Consumption rate of two 8-ounce fish meals per week, in addition to commercially acquired fish.	TL3 0.05 TL4 0.12	Protective of wildlife consumers. Protective of frequent consumers of locally caught fish. About an 70% reduction necessary to attain.
5	USEPA's default consumption rate for subsistence fishers which will allow 4-5 8-ounce fish meals per week of locally caught fish only.	TL3 0.03 TL4 0.07	Protective of wildlife consumers. Protective of most sensitive human consumers representing the 99th % consumption rate for the general population. About an 80% reduction necessary to attain.

CEQA Checklist for the Fish Tissue Objective for Methylmercury

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Recreation
- Transportation
- Utilities and Sewer Services

Environmental Impacts?	Impact Significant?	Mitigation Measures

Possible Implementation Actions

- Conduct studies to determine methylmercury sources;
- Develop controls or best management practices to reduce methyl- and/or inorganic mercury discharges or reduce methylmercury production;
- Reduce methyl- and/or inorganic mercury sources (erosion controls for contaminated sediment, clean up of mine tailings, removal of elemental mercury in tributaries (Alder and Willow Creeks), etc.);
- Reduce inorganic mercury in sediment, where methylmercury can be produced (sequestration, burial, etc.);

Possible Implementation Actions
(continued)

- Modify water management operations to minimize methyl- and/or inorganic mercury discharges;
- Reduce methylmercury exposure to the fish eating public by developing or expanding outreach, education, and/or exposure reduction programs; and
- Mitigate methyl- and inorganic mercury increases from new land developments or changes in land uses.
- ?

Potential Responsible Parties

- CA State Parks
- CA Department of Fish and Game
- CA Department of General Services
- US Bureau of Reclamation
- US Army Corps of Engineers
- Sacramento Storm Water Quality Partnership (MS4)
- County of Sacramento – American River Parkway
- City of Sacramento
- City of Folsom
- City of Rancho Cordova
- Aerojet-General Corporation
- Land Developers
- Others?

CEQA Checklist for the Implementation Actions

- Aesthetics
- Agriculture
- **Air Quality**
- **Biological Resources**
- Cultural Resources
- Geology and Soils
- Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- **Noise**
- Population and Housing
- Recreation
- Transportation
- **Utilities and Sewer Services**

Environmental Impacts?	Impact Significant?	Mitigation Measures

Schedule and Next Steps

1. CEQA Scoping Meeting – Today
2. Stakeholder meetings and developing BPA – Summer thru Winter 2010/11
3. Draft report to peer review – Winter 2010/11
4. Revise Draft BPA Report – Spring 2011
5. Formal Public Review – Spring 2011
6. Board Hearing – Summer 2011

Contact Information

- E-mail Subscription List (Lyris): http://www.waterboards.ca.gov/resources/email_subscriptions/reg5_subscribe.shtml “American River and Lake Natoma Methylmercury TMDL”
- LAR and Lake Natoma TMDL/BPA Webpage: http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/american_river_hg/index.shtml
- Questions or Comments:
  - Stephen Louie, sjlouie@waterboards.ca.gov, (916) 464-4627
  - Patrick Morris, pmorris@waterboards.ca.gov, (916) 464-4621